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| 09/404,102 | 09/23/1999 | BRIAN LESLIE DRUMMOND | 12604.2USU1 | 8041 |
| 23552 | 7590 | 10/23/2003 | EXAMINER | |
| MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903 | | | HARRELL, ROBERT B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2142 | 8 |
| DATE MAILED: 10/23/2003 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/404,102

Applicant(s)

DRUMMOND ET AL.

Examin r

Robert B. Harrell

Art Unit

2142

-- The MAILING DATE of this c mmunication appears on the cover sheet with the c rresp ndence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/32/99 et al. .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-7,9-21 and 23 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/23/99 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *See attached Office Action* .

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1. Claims 1-23 are presented for examination.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The claims are more directed to "Parallel Processing for Image Rendering of Seismic Activities",
3. The textual portion of the specification is replete with grammatical and idiomatic errors to numerous to mention specifically. The specification should be revised carefully.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a); or

5. Claims 1-7, 9-21 and 23 are rejected under 35 U.S.C. 102 (b) as being anticipated by Wang et al. (WO 97/05558).

6. Claims 1-7, 9-21, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (5,991,695).

7. The United States Patent (5,991,695), issued to Wang et al.,

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has the same disclosure as that of WO 97/05558. Thus any reference to the applicants' claimed limitation, indicated below, can be correspondingly found in 5,991,695 and thus the two have the same following reasons for their corresponding rejections. Hence for brevity, while examiner maps the applicants' claimed limitations with the disclosure of WO 97/05558 under 35 U.S.C. 102(b), such a map applies to the same disclosure of 5,991,695 and applies accordingly under 35 U.S.C. 102(e). These are Sister Rejections.

8. Per claim 1, Wang et al. (Wo 97/05558) [and the like in Wang et al. 5,991,695], taught an apparatus (eg., see figure 2) for generating an image (eg., page 2 (line 16)) use using an algorithm (eg., see Abstract), the algorithm having a plurality of tasks (computer programs or tasks that "calculate" in each Processing Element ("PE") of figure 2 per page 14 (lines 10-15) as enumerated on page 15 (line 20 "tasks")) for determining the level of energy emanating from a source (eg., see page 1 (line 17 "source position")) located within a mass (eg., see Abstract), the apparatus comprising:

a) memory (eg., see figure 2 (104) and page 13 (lines 23-27)) configured to store information defining a trace (eg., see page 1 (lines 15-20), page 5 (lines 4-20) and page 13 (line

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23-et seq. where the velocity model was the sum of the traces)), the trace defining energy levels (eg., see page 1 (line 16)) recorded at a sensor ("receiver" of page 1 (line 14)), the amplitude of the trace at one or more given instants of time being the sum of energy received from two or more sources ("shot lines") (eg., see figure 1, page 1 (lines 5-15), page 3 (lines 4-10 and 20-et seq.) and page 8 (lines 11-18)); and,

b) a data processor (100) (eg., see figure 2 and Abstract) in electrical communication with the memory (as per the arrows from 104 to 100), the data processor configured to simultaneously execute (eg., page 4 (line 3 "simultaneous") and page 22 (lines 6-8)) two or more tasks of the algorithm and determine the level of energy emanating from each source (eg., see page 4 starting with line 10-et seq.)).

9. Per claim 2, see figure 2 and page 15 (lines 20-24).

10. Per claim 3, page 7 (line 4-et seq.) makes reference to many known computers that could be employed to perform the computations required by Wang. One such machine was the Cray Computer manufactured by Cray Research Corporation (eg., see page 7 (line 18), not only was such a computer a Massively Parallel Processor (MPP) with many Processing Elements (PEs), each PE perform processing using pipeline technology as currently

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claimed (Official Notice) as did many of the other MIMD and SIMD systems as enumerated starting with page 11 (last two lines).

11. Per claim 4, the Abstract references the claimed "travel time" while page 1 (line 16 as an example) makes reference to "trace". Since the processors, in Wang, are grouped (eg., see Abstract (line 3) and page 6 (line 14)) the limitation of a travel time processor would be the group of processing elements as mentioned in the Abstract (line 3) while the trace processor would be the group of processing elements as mentioned on page 6 (line 14).

12. Per claims 5-7, per "shot" see page 3 (starting with line 6-et seq.) which were used to echo the travel time from the either the round trip from the shot to the source to the sensor or just from the source to the sensor as the computed data is interpolated among the processing elements per page 22 (lines 6-12 as examples).

13. Per claim 9, see page 1 (line 19 "image").

14. Per claims 10-21 and 23 they do not teach or define above the correspondingly rejected claims and are thus rejected for the reasons outline above. However, per claims 15-17, computer were manufactured using silicon based circuitry, some of which were memory that held algorithms as designed by Wang. Viewed

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differently, other than software stored in hardware circuitry, algorithms could be hardwired and thus a software algorithm stored in circuitry and a hardwired version of the algorithm are logical equivalents. Per claim 18, a "gate level netlist" was Wang's velocity model as stored in memory 104 per page 13 (lines 23-27 as an example) and the associated algorithms executed by the processing elements.

15. Claims 8 and 22 are allowable over the art of record. However, since claim 8 is dependent upon a rejected claim, claim 8 also stands as objected to as being dependent upon a previously rejected claim.

16. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Harrell whose telephone number is (703) 305-9692. The examiner can normally be reached Monday thru Friday from 5:30 am to 2:00 pm and on weekends from 6:00 am to 12 noon Eastern Standard Time.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley, can be reached on (703) 308-5221. The fax phone numbers for the Group are (703) 746-7238 for After-Final, (703) 746-7239 for Official Papers, and (703) 746-7240 for Non-Official and Draft papers.

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9600.



ROBERT B. HARRELL
PRIMARY EXAMINER